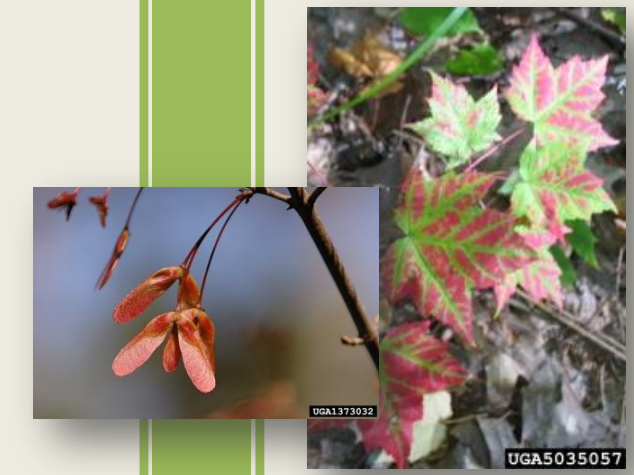


Soft maple

Red maple, *Acer rubrum*
Silver maple, *Acer saccharinum*

The **volume of soft maple has increased** significantly since 1983. Soft maple, like many other species groups is aging. The volume in large trees has more than tripled in the last two decades.

Along with volume, **the rates of growth and mortality have also increased**. But the **ratio of mortality to volume for soft maple is much lower** than the average for all species. Whereas soft maple makes up about 11% of volume and 13% of growth of trees in Wisconsin, it accounts for only 4.6% of total mortality.

Soft maple is **an important timber species**, making up 11% of roundwood production and 13% of all biomass.

- *How has the soft maple resource changed?*
  Growing stock volume and diameter class distribution: 1983, 1996, and 2008
- *Where does soft maple grow in Wisconsin?*
  Growing stock volume by region with map
- *How fast is soft maple growing?*
  Average annual net growth by region and year: 1983, 1996, and 2008
- *How healthy is soft maple in Wisconsin?*
  Average annual mortality by region and year: 1983, 1996, and 2008
- *How much soft maple do we harvest?*
  Roundwood production by product: 1997, 2003, and 2006
- *How much is soft maple selling for?*
  Prices for cordwood and sawtimber: 2000 to present
- *How much soft maple biomass do we have?*
  Oven-dry tons by region of the state: 2008

"How has the soft maple resource changed?"

Growing stock volume and diameter class distribution by year

The growing stock volume of soft maple in Wisconsin in 2008 was approximately 2.4 billion cft or about 11.5% of total statewide volume (Chart 1). Soft maple **volume has doubled since 1983** and increased by 27% since 1996.

The soft maple resource is increasing and maturing in Wisconsin (Chart 2). Volume in all size classes has increased but especially in larger trees. For instance, the volume in small trees (5 to 13 inches) has increased 60% since 1983 but the volume in large trees (over 13 inches) has more than tripled in the same period.

The number of soft maple trees has increased substantially, especially for sawtimber trees and for silver maple (Chart 3). This suggests that soft maple will play a significant role in future forests.

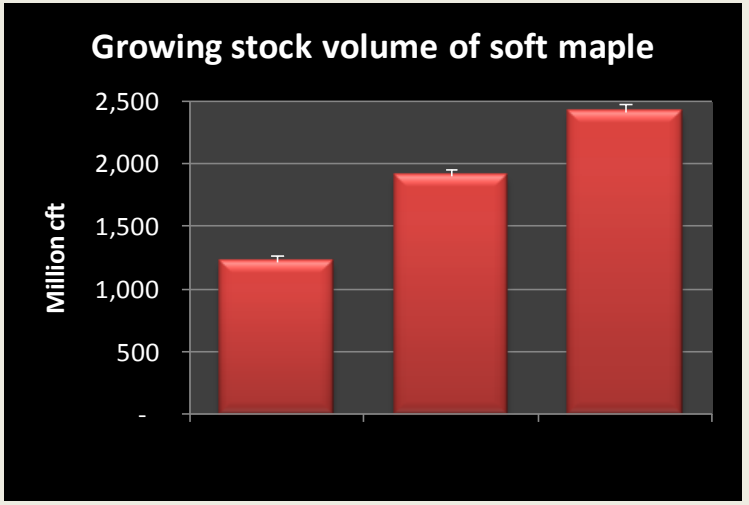


Chart 1. Growing stock volume (million cubic feet) by inventory year.
Source: USDA Forest Inventory and Analysis data: 1983, 1996, and 2008.

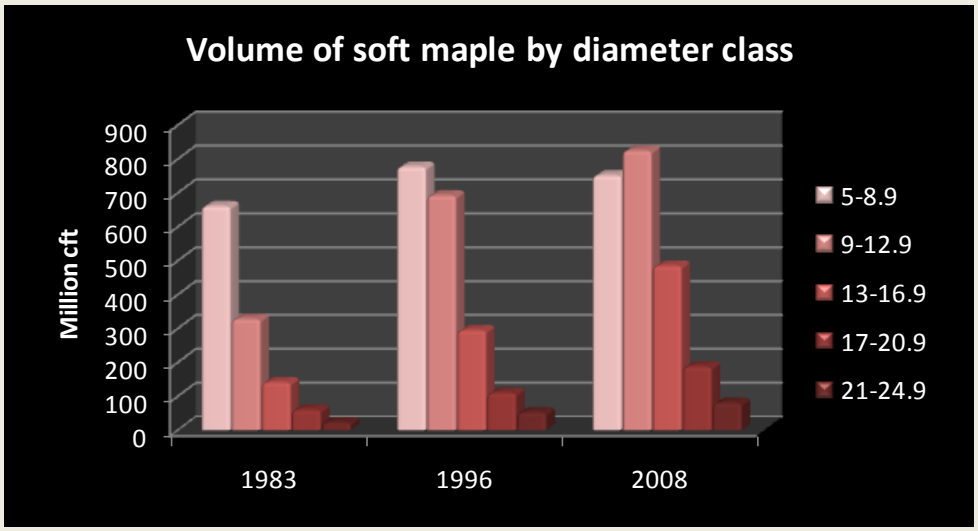


Chart 2. Growing stock volume (trees over 5 inches dbh) in million cubic feet in 1983, 1996, and 2008.
Source: USDA Forest Inventory and Analysis data: 1983, 1996, and 2008.

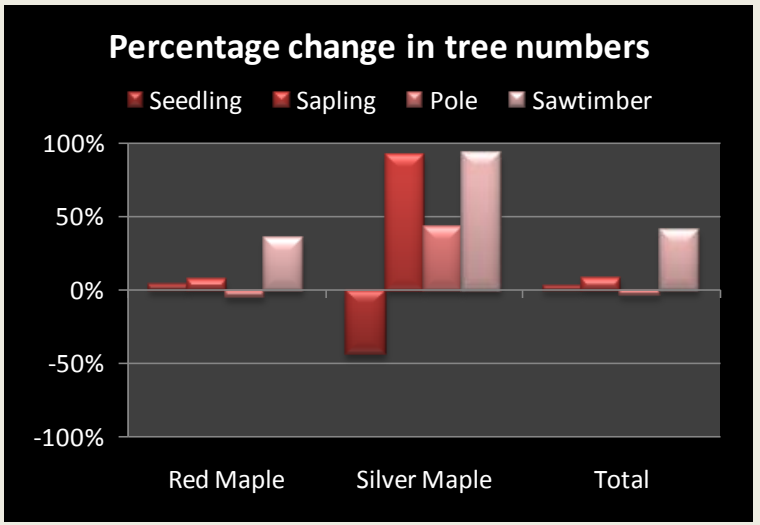
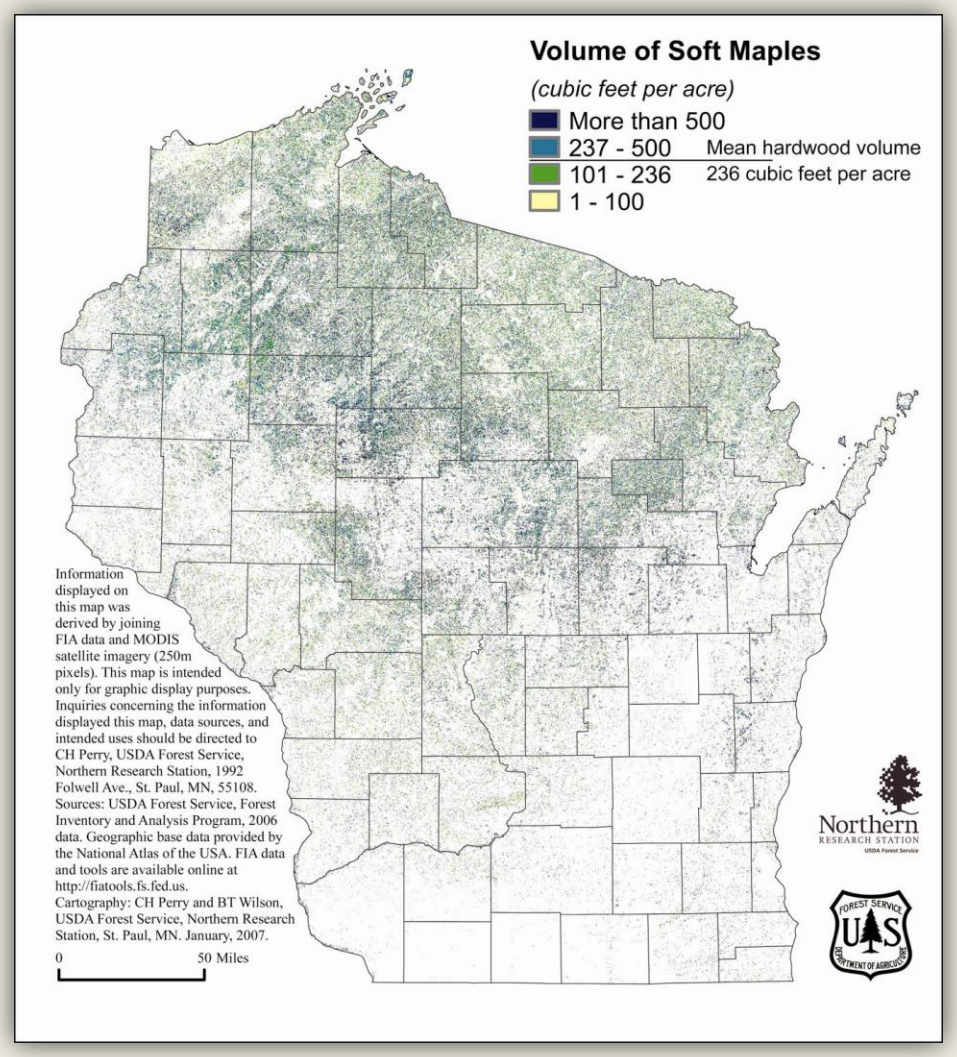


Chart 3. Percentage change in the number of live trees by size class between 1996 and 2008.
Source: USDA Forest Inventory and Analysis data 1996, and 2008.

"Where does soft maple grow in Wisconsin?"

Growing stock volume by region with map



The majority of soft maple volume, 88%, is red maple and is found in the northern and central parts of the state (Table 1). Most silver maple occurs in the southwest part of the state.

In the south, soft maple occurs mainly in the bottomland hardwood forest type and, to a lesser extent, the oak hickory type. In the north, more than half of the soft maple (mostly red maple) occurs on the maple basswood forest type.

Table 1. Growing stock volume (million cft) by species and region of the state.

Species	Central	North east	North west	South east	South west	Total	Percent of total
Red Maple	548	556	831	100	98	2,133	88%
Silver Maple	64	20	10	55	132	280	12%
Total soft maple	612	577	841	154	230	2,414	100%
Percent of total	27%	25%	36%	7%	10%	100%	

Source: USDA Forest Service, Forest Inventory and Analysis 2008 data

Additional tables:
Volume by county in 2008 (pdf; Excel)

"How fast is soft maple growing?"

Average annual net growth by region and year

Average annual net growth of soft maple is about 76.4 million cft/yr, representing 13% of statewide volume growth (Chart 4). Growth rates have increased 46% since 1983 and 18% since 1996.

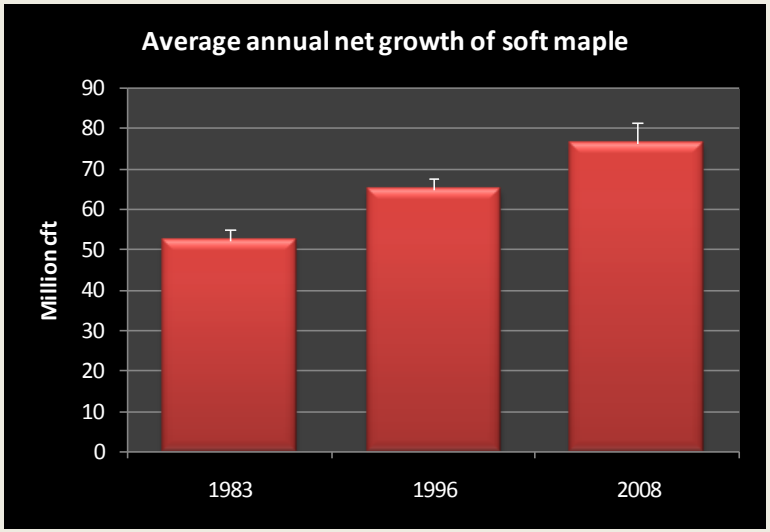


Chart 4. Average annual net growth (million cubic feet).
Source: USDA Forest Inventory & Analysis data: 1983, 1996, 2008

Table 2. Average annual net growth (million cft/year) of growing stock and the ratio of growth to volume by region of the state.

Region	Net growth	Percent of Total	Ratio of growth to volume
Central	23.1	30%	**3.8%**
Northeast	17.1	22%	**3.0%**
Northwest	22.0	29%	**2.6%**
Southeast	5.3	7%	**3.4%**
Southwest	8.9	12%	**3.9%**
Statewide	**76.4**	**100%**	**3.2%**

Source: USDA Forest Inventory and Analysis 2008

The highest volume growth for soft maple occurs in central and northern Wisconsin but the highest growth to volume ratio occurs in the southwest and central regions of the state (Table 2).

The average statewide ratio of net growth to volume for soft maple is 3.2%, slightly higher than the statewide average of 2.8% for all species.

Additional tables:
Average annual growth, mortality and removals by region (Pdf, Excel).

"How healthy is soft maple in Wisconsin?"

Average annual mortality by region and year

Average annual mortality of soft maple, about 9.4 million cft per year in 2008, has increased 88% since 1983 but has remained statistically unchanged in the last 10 years (Chart 5). Soft maple accounts for about 11.5% of total growing stock volume in the state but only 4.6% of total mortality.

The ratio of mortality to gross growth is 11% for soft maple species, **much lower than the statewide average** of 24% (Table 3).

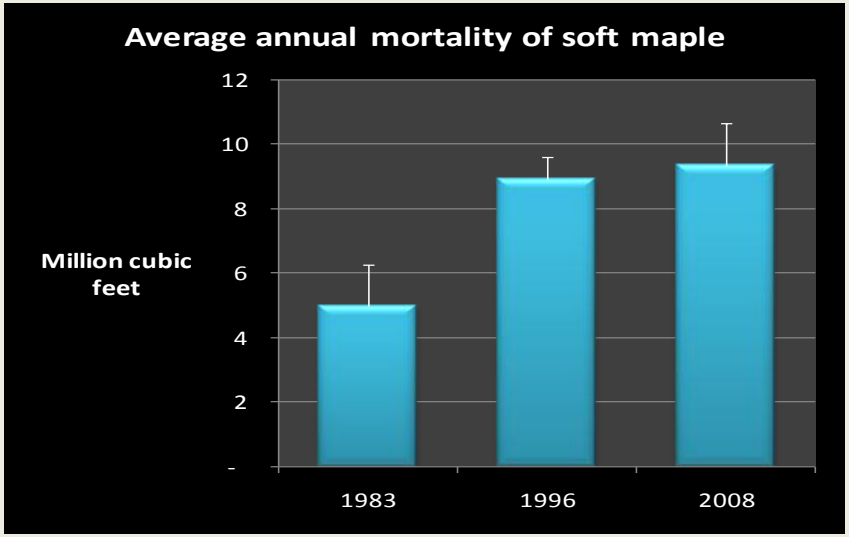


Chart 5. Average annual mortality (million cubic feet) by inventory year.
Source: USDA Forest Inventory & Analysis data: 1983, 1996, and 2008

Table 3. Mortality, gross growth, and the ratio of mortality to gross growth.

Species	Average annual mortality (cft)	Average annual gross growth (cft)	Mortality / growth
Red Maple	8,834,426	77,643,775	**11%**
Silver maple	513,215	8,085,331	**6%**
Total Soft Maple	**9,347,641**	**85,729,106**	**11%**

Source: USDA Forest Inventory & Analysis data: 2008

Additional tables:
Average annual growth, mortality and removals by region (Pdf, Excel).

"How much soft maple do we harvest?"

Roundwood production by product and year

In 2003, soft maple accounted for 43.7 million cft or about 11% of Wisconsin's total roundwood, more than ¾ used for pulpwood (Chart 6).

In 2006, pulpwood production decreased by 10 million cft or 30%. Soft maple still accounts for 17.3% of all pulpwood produced.

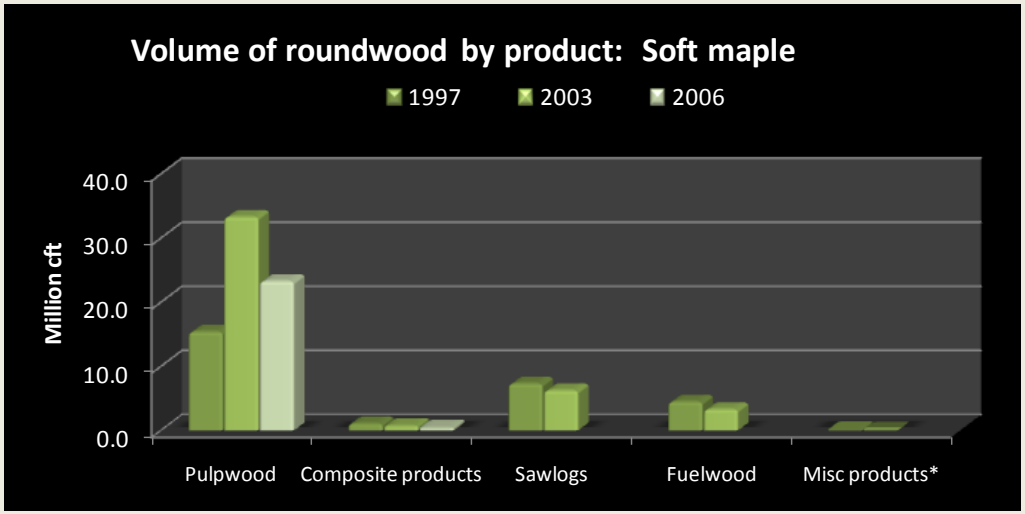


Chart 6. Volume of roundwood products. The most recent numbers for pulpwood and composite products are from 2006 and the most recent numbers for sawlogs, fuelwood and miscellaneous products are from 2003 (Ron Piva).
* Miscellaneous products include poles, posts, pilings and veneer.
Source: Timber Products Output Mapmaker, http://ncrs2.fs.fed.us/4801/fiadb/rpa_tpo/wc_rpa_tpo.ASP

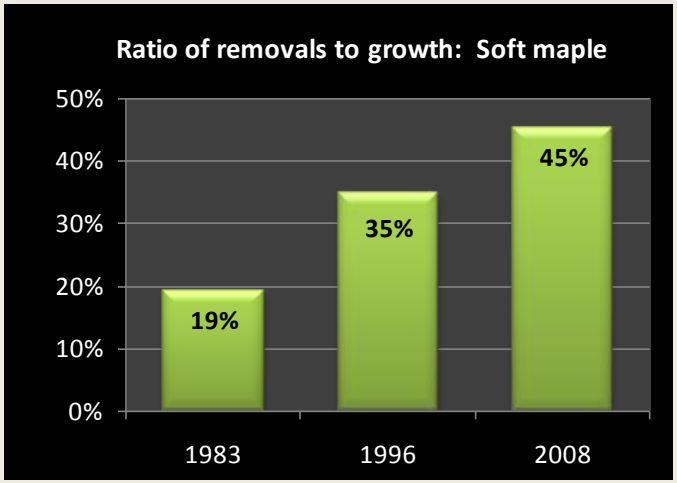


Chart 7. Ratio of volume harvested annually to net growth.
Source: USDA Forest Inventory & Analysis data: 1983, 1996, and 2008.

The ratio of removals to growth for soft maple is 45%, much lower than the average of 56% for all species in the state. Removals increased but not as much as growth rates.

Additional tables:
Average annual growth, mortality and removals by region (Pdf, Excel).

"How much is soft maple selling for?"

Prices for pulpwood & sawtimber: 2000 to present

Due to the variability of timber prices from year to year and region to region, two methods of reporting prices are presented here: Timber Mart North (Chart 8) and weighted average stumpage prices from Wisconsin Administrative Code Chapter NR 46 (Table 4).

Sawtimber and cordwood prices, as reported both in the Timber Mart North and NR46, have varied over the last 8 years.

Cordwood and log prices have fallen in the last 2-3 years. Prices are slightly above average.

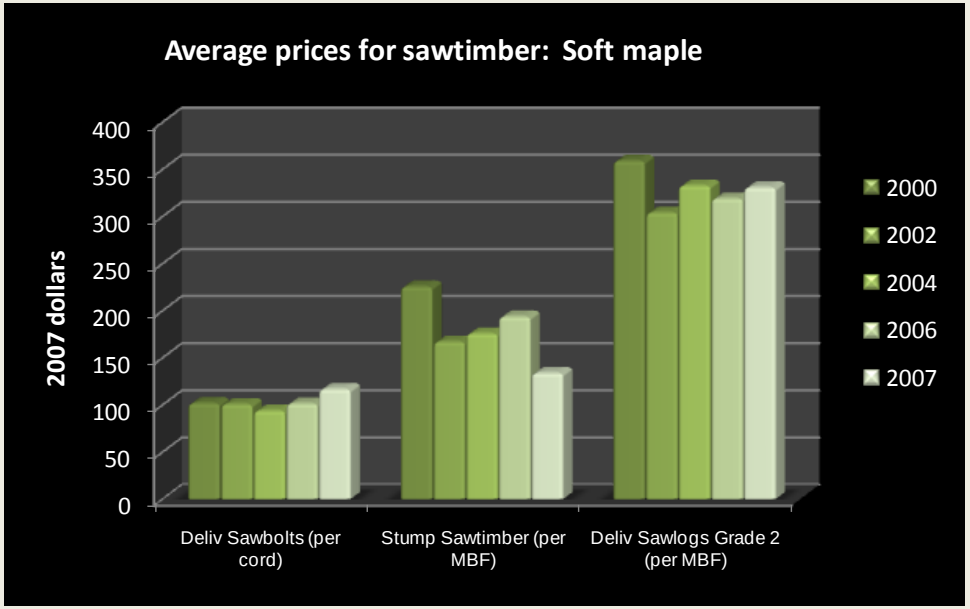


Chart 8. Average prices for cordwood and sawtimber (2007).
Source: Timber Mart North, George Banzhaf & Company, 8301 N. Allen Lane, Milwaukee, WI 53217

Table 4. Average weighted stumpage prices (adjusted for inflation to 2009 dollars) by year for Wisconsin.

Product	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Average for all hardwoods
Cordwood (per cord)	$31	$39	$21	$23	$30	$45	$49	$39	NA	**$25**	$19
Logs (per MBF)	$166	$206	$144	$187	$186	$220	$258	$276	$174	**$142**	$140

Source: Wisconsin Administrative Code Chapter NR46, 2000 to 2009

"How much soft maple biomass do we have?"

Oven-dry tons by region of the state

There were 74.7 million oven-dry tons (ODT) of soft maple biomass in 2008, an increase of 5.5 million ODT or 8%, from 1996. This species represents 12.6% of all live biomass statewide. As with volume, most soft maple biomass is located in central and northern Wisconsin (Chart

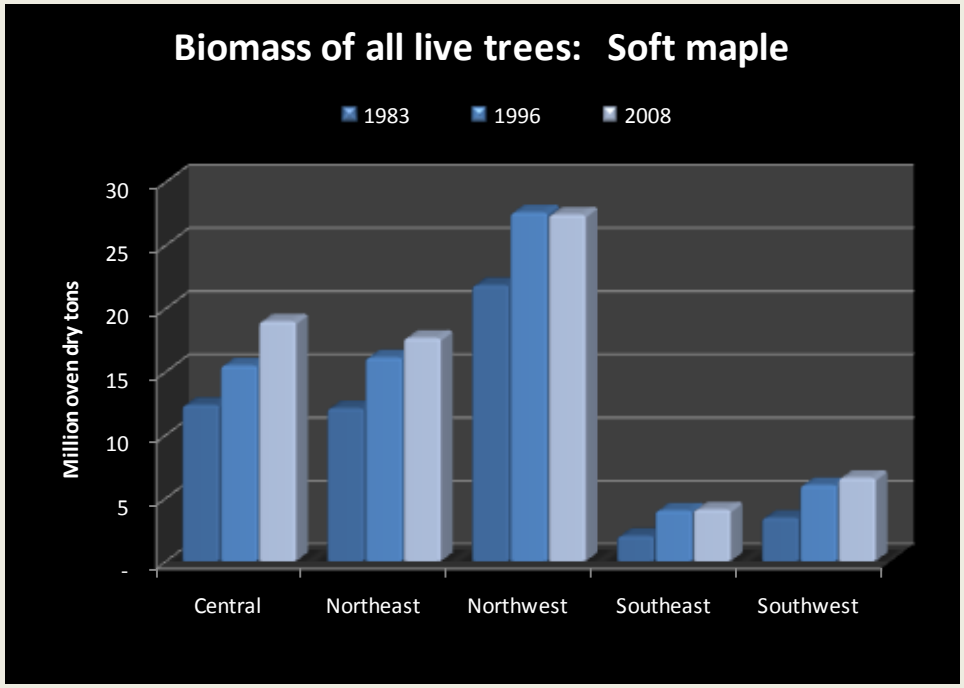


Chart 9. Biomass (million oven-dry tons) by year and region.
Source: USDA Forest Inventory & Analysis data: 1983, 1996, and 2008

The density of soft maple wood is slightly lower than average for hardwoods with a ratio of biomass to volume of 48.4 oven-dry lbs. per cubic foot (ODP/cft). The average for all hardwoods is about 50.1 ODP/cft and for all species is 46.8 ODP/cft.

Approximately, 74% of all soft maple biomass is located in the main stem and 22% in the branches.

Additional tables:
Biomass by county in 2008 (pdf; Excel)